

Name

1. 10.4.1 Describe, using equations, the complete combustion of alcohols. (2)

- a. What is the general formula for alcohols?
- b. Write the equation for the combustion of methanol, ethanol and pentanol:

Combustion Equation	Enthalpy	CO ₂ :OH

- c. What is the trend in CO₂ : OH ratio and enthalpy combustion?
- d. What is gasohol, write some benefits and drawbacks:
- e. Calculate and compare the efficiency of both ethanol and octane ($\Delta H_{c(C_8H_{18})} = -5512 \text{ kJ/mol}$) when 1 gram of each is combusted:
- f. List several important properties of alcohols

2. 10.4.2 Describe, using equations, the oxidation reactions of alcohols. (2)

- a. What occurs during the oxidation of alcohols:
- Products depend on:
 - Common oxidizing agent:
 - What is the color change during the reaction (IMPORTANT)

3. 10.4.3 Determine the products formed by the oxidation of primary and secondary alcohols. (3)

a. Illustrate and explain the reaction for a primary alcohol such as ethanol:

i. How can you isolate the products?

b. Illustrate and explain the reaction for a secondary alcohol such as propan-2-ol:

c. Illustrate and explain the reaction for a tertiary alcohol such as 1-methylpropan-2-ol:

d. Summarize the oxidation of alcohols using the table below:

	Explanation:	Step 1:	Step 2:	Color Change:
Primary				
Secondary				
Tertiary				